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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
BROUSSARD, COREY M	

ART UNIT	PAPER NUMBER
2835	

DATE MAILED: 10/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/607,783	MACGREGOR, MIKE G.	
	Examiner	Art Unit	
	Corey M. Broussard	2835	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 September 2005 (RCE)*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *21-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *21-40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 May 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 21-26, 33, and 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thurston et al. (PN 5,883,782) in view of Ruegg (PN 4,266,267). With respect to claim 21, Thurston teaches a heat sink (206) that includes an upper surface and a lower surface and an opening (207) extending between the upper and lower surfaces of the heat sink; a motherboard (204); an electronic device (202) between the motherboard and the lower surface of the heat sink; a pin (212) that contacts the upper surface of the heat sink, the pin extending through the opening in the heat sink and the motherboard to couple the heat sink to the electronic device and the motherboard (see Fig. 2). Thurston lacks specific teaching of a member within the opening in the heat sink. Ruegg teaches an electronic device (10) is mounted to a heat sink (12) by a pin (15); wherein a member (16) is within the opening in the heat sink, the member being between the heat sink and the pin (see Fig. 2). It would have been obvious to a person of ordinary skill in the art to modify the assembly of Thurston with the O-ring of Ruegg for the benefit of a more secure and tighter heat sink mounting engagement.

3. With respect to claim 22, Ruegg teaches wherein the member (16) is a bushing that is pressed into the opening in the heat sink (see Fig. 2).

4. With respect to claim 23, Ruegg teaches wherein the pin (15) is pressed through an opening in the bushing (16, see Fig. 2).

5. With respect to claim 24, Ruegg teaches wherein the member is plastic (see col 2, 63-66, which teach that the member 16 is made from neoprene or silicone, which are plastics).

6. With respect to claim 25, Thurston teaches wherein the pin (212) includes a head (214) that is larger than the opening (207) in the heat sink (206), the head of the pin contacting the upper surface of the heat sink (see Fig. 2).

7. With respect to claim 26, Thurston teaches a thermally conductive material (210) between the heat sink (206) and the electronic device (202, see Fig. 2).

8. With respect to claim 33, the method is inherent in the structure of Thurston, Thurston teaches of an electronic device (202) attached to a motherboard (204); the electronic device thermally coupled to a heat sink (heat sink 206 is thermally coupled through thermally conductive grease 210) such that the electronic device is between a lower surface of the heat sink and the motherboard (see Fig. 2); an opening in the heat sink (207) and the motherboard (205) and a pin (212) inserted into the openings, the pin contacts an upper surface of the heat sink and is secured to the motherboard (see Fig. 2). Thurston lacks specific teaching of a member between the pin and heat sink. Ruegg teaches placing a member (16) between the pin (15) and heat sink (12) of an electrical device assembly (see Fig. 2). It would have been obvious to a person of

ordinary skill in the art to modify the assembly of Thurston with the O-ring of Ruegg for the benefit of a more secure and tighter heat sink mounting engagement.

9. With respect to claim 35, Ruegg teaches pressing a bushing (16) into the opening in the heat sink (12, see Fig. 2).

10. With respect to claim 36, Ruegg teaches wherein positioning a member (16) within the opening in the heat sink (12) includes positioning the entire member within the opening in the heat sink (see Fig. 2).

11. With respect to claim 37, Ruegg teaches wherein positioning a member (16) between the pin (15) and the heat sink (12) within the opening in the heat sink includes placing a member that is more elastic (16 is made from a resilient material such as silicone rubber, see col 2 lines 63-66) than the pin and the heat sink between the pin and the heat sink to alleviate stress between the pin and heat sink (the heat sink is made of a metal material, see col 2 line 40, and it is known to use metal machine screws. Silicone rubber is more elastic than metal).

12. Claims 27-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson et al. (PN 6,046,905) in view of Johnson et al (PN 4,321,423). With respect to claim 27, Nelson teaches a heat sink (24, 30) that includes an opening extending through the heat sink; a motherboard (14); an electronic device (18) between the motherboard and the heat sink; a pin (26) that extends through the opening in the heat sink (see Fig. 2); and a member (45) within the opening in the heat sink, the member being between the heat sink and the pin (col 3, 14-16). Nelson lacks specific teaching of wherein the pin is soldered to the motherboard to couple the heat sink to the

electronic device and the motherboard. Johnson teaches wave soldering the pin (9, 10) to the motherboard (8, col 3 lines 50-62). It would have been obvious to use the wave soldering technique taught by Johnson to connect the pins to the motherboard instead of the spring clip of Nelson for the benefit of strong mechanical connection between the pin and the motherboard.

13. With respect to claim 28, Nelson teaches wherein the member (45) is a bushing that is pressed into the opening in the heat sink (24, 30) and the pin (26) is pressed through an opening in the bushing (col 3, 14-16, see Fig. 2).

14. With respect to claim 29, Nelson teaches wherein the heat sink (24, 30) includes an upper surface and a lower surface such that the opening (openings in 24 for 26, see Fig. 2) extends between the upper and lower surfaces of the heat sink, the pin (26) engaging the upper surface of the heat sink and the electronic device (18) engaging the lower surface of the heat sink (the pins and electronic device inherently engage all surfaces of the heat sink, see Fig. 2).

15. With respect to claim 30, Nelson teaches wherein the pin (26) includes a head (44) that is larger than the opening in the heat sink (see Fig. 2, col 3 lines 15-16, 34-35), the head of the pin engaging the upper surface of the heat sink (the head of the pin engages the heat sink and therefore must inherently engage all surfaces of the heat sink).

16. With respect to claim 31, Nelson teaches wherein the pin (26) includes a body that is cylindrical, and the opening in the heat sink (24, 30) is cylindrical (see Fig. 2, 3).

17. With respect to claim 32, Nelson teaches a thermally conducive material (40) between the heat sink and the electronic device (18, see Fig. 2, col 3, 38-40).

18. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thurston et al. (PN 5,883,782) in view of Ruegg (PN 4,266,267) and in further view of Johnson et al (PN 4,321,423). Thurston in view of Ruegg teaches the device as applied to claim 33 above, but lacks specific teaching of wave soldering the pin to the motherboard. Johnson teaches wave soldering the pin (9, 10) to the motherboard (8, col 3 lines 50-62). It would have been obvious to use the wave soldering technique taught by Johnson to connect the pins to the motherboard of Nelson for the benefit of strong mechanical connection between the pin and the motherboard.

19. Claims 38 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thurston et al. (PN 5,883,782) in view of Ruegg (PN 4,266,267) and in further view of Cohen (PN 6,549,410). With respect to claim 38, Thurston teaches a heat sink (206) that includes an upper surface and a lower surface and an opening (207) extending between the upper and lower surfaces of the heat sink; a mother board (204); an electronic device (202) between the motherboard and the lower surface of the heat sink; a pin (212) that contacts the upper surface of the heat sink (see Fig. 2), the pin extending through the opening in the heat sink and the motherboard to couple the heat sink to the electronic and the motherboard. Thurston lacks specific teaching of a member within the opening and wherein the motherboard is attached to the chassis. Ruegg teaches wherein a member (16) is within the opening in the heat sink (12), the member being between the heat sink and the pin (15, see Fig. 2). Choen teaches a

chassis (24), the motherboard (26) attached to the chassis. It would have been obvious to a person of ordinary skill in the electrical art to combine the chassis mounted motherboard of Cohen with the heat sink mounting structure of Nelson for the benefit of allowing large and heavy heat sinks offering increased heat dissipation where the weight of the heat sink is not fully supported by the motherboard.

20. With respect to claim 39, Ruegg teaches wherein the member (16) is a bushing that is pressed into the opening in the heat sink (12, see Fig. 2).

21. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thurston et al. (PN 5,883,782) in view of Ruegg (PN 4,266,267) in view of Cohen (PN 6,549,410) as applied to claim 38 above, and further in view of Johnson et al (PN 4,321,423). Thurston in view of Ruegg and Cohen lacks specific teaching of the pin soldered to the motherboard. Johnson teaches wave soldering the pin (9, 10) to the motherboard (8, col 3 lines 50-62). It would have been obvious to use the wave soldering technique taught by Johnson to connect the pins to the motherboard of Nelson for the benefit of strong mechanical connection between the pin and the motherboard.

Response to Arguments

22. Applicant's arguments with respect to claims 21-26 and 33-40 have been considered but are moot in view of the new grounds of rejection.

23. Applicant's arguments filed 9/26/2005 with respect to claims 27-32 have been fully considered but they are not persuasive. Applicant alleges that the combined references teach away from each other. Applicant cites Nelson as stating that the clip is

designed to accommodate for tolerances and that the clip provides a minimum pull force. The Examiner fails to see how a soldered connection could not accommodate a tolerance in the cartridge or provide a minimum pull force. Nelson fails to teach a specific tolerance or minimum pull force, and the Examiner asserts that a soldered connection would at least accommodate a tolerance and provide a minimum pull force. Johnston provides motivation in his disclosure. See column 1 lines 38-52, where Johnston teaches that it is known to use spring clips and/or solder in securing heat sinks to electronic devices. This would suggest to one skilled in the art to use clips or solder or a combination thereof to connect heat sinks to their respective devices. The Applicant seems to contend that a soldering connection is inferior to the spring clip connection and therefore the combination is defective. Disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. See MPEP 2123 and In re Susi 169 USPQ 423. The Examiner believes that regardless of whether a clip is superior to a solder connection in accommodating tolerances, the combination incorporating a solder connection has some utility in the field and the rejection above based on such a combination is proper.

Conclusion

24. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kuhlow (PN 3,728,584) demonstrating the conventionality of bushings in heat sink mounting methods.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Corey M. Broussard whose telephone number is 571 272 2799. The examiner can normally be reached on 7:30-5 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn Feild can be reached on 571 272 2092. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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ANATOLY VORTMAN
PRIMARY EXAMINER